REMARKS

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested.

Interview Summary

During the telephonic interview held between Examiner Stephen Ralis and Keith Townsend in the afternoon of Tuesday June 1, 2010, issues pertaining to the rejections raised under 35 USC § 112, were discussed and some clarification as to the Examiner's positions were established. As to the issue relating to the claimed "normal switching time" in claim 4 vis-à-vis, the switching time recited in claim 1, the Examiner indicated that he had no problem with the term "normal switching time" against which the switching time recited in claim 1, was compared. This seemed to indicate that the comments advanced in the Agenda forwarded to the Examiner prior the interview had a clarifying effect.

In connection with the cited art, the Examiner steadfastly maintained that the Frus (US 5,847,367) reference was such as to do the same thing as claimed despite it being pointed out that in Frus the flow of current was held up upstream of the switch (viz., was delayed) and was not released until the switch closed. This, it was advanced on behalf of the Applicant, had no bearing on slowing the rate what which the switch *per se* was closed and that Frus did not mention switching time *per se*. It was advanced that with the claimed subject matter the switching time was prolonged or made slower and that this was the antithesis of what would be rationally implemented in Frus. That is to say, it was argued that in Frus, it would be logical to close and open the switch as quickly as possible so as to minimize the time that the flow of current would have to be delayed. The Examiner responded by indicating that this was the same thing as being claimed. The Examiner apparently considering that the delay in current flow is the same thing as delaying the switching of the switch – because, in the Examiner's opinion this "protected" the switch. The Applicant's representative pointed out the error in this position but the Examiner remained adamant that the switch protection aspect rendered

the claimed subject matter *prima facie* obvious.

Rejections under 35 USC § 112

In this response, the claims have been reviewed and clarifying amendments have been made. In accordance with the verbal indication that there was no problem with the use of the term "normal switching time" it has been maintained. That is to say, it would be irrational for the normal switching time to be the same as the switching time recited in claim 1, in that that this would require the prolonged time to be meaninglessly compared with itself.

Rejections under 35 USC § 103

The rejections of:

1) Claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Hancock et al. (U.S. Patent No. 5,847,367) in view of Frus et al. (U.S. Patent No. 5,754,011); and

2) claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Prager (U.S. Publication No. 2002/0130123) in view of Frus et al. (U.S. Patent No. 5,754,011); are both respectively traversed.

The Examiner's remarks on page 12 of this Office Action reveal the basic flaws in both of the rejections. That is to say, the Examiner states that Frus et al. explicitly teach providing protection for the solid-state-switch (32) in the circuit by holding off the current discharged from the capacitor (30) for a time sufficient for the switch (32) to transition from its non-conducting state to its conducting state is known in the art (column 11, lines 17-23).

The Examiner further states that Frus et al. further teach controlling the rise time of the current in this manner maximizes the life of the solid-state switch... by providing such components an opportunity to pass through their transition states before being taxed with a full, high energy pulse (column 1, lines 40-45).

The Examiner then concludes that Frus et al. is clearly concerned with the energy distribution in a switch during transition from a non-conducting state to a conducting state with providing a delaying of current application to extend the life of the switch.

Furthermore, the Examiner indicates that he can find no teaching to criticize, discredit or otherwise discourage trying to delay switching time or transition from a non-conductive state to a conductive state.

This reveals the misconceptions/errors that underlie the above rejections.

The position that the Examiner "can find no teaching to criticize, discredit or otherwise discourage trying to delay switching time or transition from a non-conductive state to a conductive state" provides the Applicant with the perfect non-obvious position. There is nothing in any of the references which would lead to this position. Delaying current flow to the switch is disclosed in Frus et al. However, delay switching time or transition from a non-conductive state to a conductive state is not. This issue will be discussed further herein below.

The instant invention is not directed to "protecting" the switch as appears to be the Examiner's position. Frus et al. is not concerned with the energy distribution in a switch during transition from a non-conducting state to a conducting state with providing a delaying of current application to extend the life of the switch. Why? Because there is no current permitted to reach the switch until the switching of the device is complete – and then current is slowly supplied as discussed herein below. As such there is no energy to distribute – because there is no current reaching the switch.

Therefore, Frus et al. cannot be concerned with energy distribution in the switch due to switching speed in the manner purported by the Examiner – because there is no energy to distribute during its switching. Frus et al. ensure that the switch is fully open before any current is supplied thereto.

Frus et al. do not discuss switching time of the switch and very clearly do not attempt to prolong the switching time as claimed. The only time that Frus et al. are concerned with is one which is sufficient for the switch (32) to transition from its non-conducting state to its conducting state – as clearly stated by the Examiner. The rate at which the switch opens and closes is not discussed by Frus et al. Indeed, it would be rational to expect the quicker the switch is caused to transition from a non-conductive state to a conductive one, the better. Conversely, the longer the transition the longer that current must be held off – and the slower the circuit will undesirably operate.

In connection with the "slow transition = protection" position taken by the Examiner, it is submitted that this shows the Examiner has not bothered to read the specification under examination. Attention is called to page 2, lines 30-35, wherein the consequence of increasing the switching time is discussed. Viz.:

> A consequence of the invention is an **increase** in the switching time of the switch which will **tend to increase the power dissipated** when the switch operates. The **dissipated power will nevertheless be maintainable within reasonable limits** with regard to the cycle time with which the switch operates. (Emphasis added)

Obviously, the Examiner did not consider this when boldly stating that he "can find no teaching to criticize, discredit or otherwise discourage trying to delay switching time or transition from a non-conductive state to a conductive state." Applicants' submit the Examiner is completely incorrect. The slower the switching the worse it is for the switch. Delaying current flow to the switch is one thing, delaying the switching of the switch *per se* is another.

Further, page 2, lines 7-19 are such as to disclose:

> . . . The switching time of a power transistor used as an electronic switch is typically much less than 1 μs. A short

> switching time is advantageous from the point of view the power dissipation in the transistor; indeed, **the shorter the switching time, the lower the power dissipated during switching**.
>
> **Rapid variations in current drawn from the supply line cause interference** to be emitted that is all the more difficult to filter the higher the powers involved.
>
> The aim of the invention is to propose a solution to the problem of **interference being emitted** by avoiding switching **at too high a speed** in the electronic switch. (Emphasis added)

This is submitted as providing a basis for the subject matter advanced in new claim 11.

Frus discloses a spark generating device. The spark is generating through an electronic switch 32. The switch is protected against over current that could cross the switch. See column 11, lines 17 to 21. The protection means are not described in this document but in US 5,245,252. The inventor of 5,245,252 is also Frus. This other patent discloses an inductance serial connected with the switch. The inductance permits a slowly increasing of the current threw the switch and thus protects it.

The main drawback of this device is to add a component permanently serially connected in the power circuit of the switch. In this device, the switching time of the switch is not controlled. By contrast, the claimed invention does not add any permanent serial connected component with the switch, but controls the switching time of the switch. In the embodiment described in figure 3, resistor R3 is not serially connected with the switch, but is connected in parallel. When the switch is ON, no component is serial added with the switch and the heating element RH.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the application is in condition for allowance and a Notice to that effect is earnestly solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

LOWE HAUPTMAN HAM & BERNER, LLP

Kenneth M. Berner
Registration No. 37,093

1700 Diagonal Road, Suite 300
Alexandria, Virginia 22314
(703) 684-1111
(703) 518-5499 Facsimile
Date: June 4, 2010
KMB/KJT/bjs